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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KASTLER, SCOTT R

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 02/13/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/926,289

Applicant(s)

LEBRUN ET AL.

Examiner

Scott Kastler

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

### ***Specification***

The disclosure is objected to because of the following informalities: the brief description of the drawings, at page 9 of the specification, contains no description of figures 1, 1a or 1b.

Appropriate correction is required.

### ***Claim Objections***

Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The above claim does not fairly further limit independent claim 1 because by stating that the injection part be made of either one or several elements, the claim recites all possible configurations of the injection part and thereby does not further limit the manner in which the injector part could be constructed.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The above claims are confusing and indefinite for the following reasons:

1. In claim 1, the terms “preferably” (at lines 3 and 13), claim 14, line 9 and claim 11, line 3, and the term “such as” in claim 3, lines 4 and 6, render the claims indefinite because a

Art Unit: 1742

broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989). The Board stated that this type of language can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the instant case, it was assumed, for examination purposes, that any limitations after the term “preferably” were merely exemplary of the remainder of the claims, and therefore not required.

2. In claim 3, the applicant lists Fe as a refractory metal, while Fe (iron) is not normally considered a refractory metal, thereby rendering the claim indefinite as to what elements exactly, the applicant considers “refractory metals”. Claim 3 is further indefinite because it is not clear if the claim is to be limited to the nitrides and carbides shown within the parentheses “()” of the claim, or if these are merely examples of nitrides and carbides. For examination purposes, claim 3 was interpreted as reading “Device according to claim 2, characterized in that when the liquid metal is aluminum, magnesium or their alloys, the wettable material is from the group consisting of refractory metals and their alloys, steels and their alloys, refractory ceramics, refractory nitrides or refractory carbides.”.

Art Unit: 1742

3. Claim 10 is indefinite because the term “the smallest possible buffer volume” is unclear, because it is not stated what objective must be achieved by this volume.

4. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Montgrain.

Montgrain teaches a device and method for injection of gas bubbles into a molten metal contained in a treatment volume (20) where the device includes a static injection part (7) made of an inert material which at col. 6, lines 23-32 for example states that the part may be made of graphite (stated by the applicant to be non-wettable to molten aluminum at page 10 of the instant specification for example), iron, silicon carbide (a refractory carbide) or refractory metals (all stated by the applicant, at claim 3 for example, to be wettable by molten aluminum), where the static part (7) includes a number of orifices (4) located at the top of tapered protuberances (3) which are removable (by cutting for example), with a single orifice in each protuberance, configured to mechanically (geometrically) limit the contact area of the orifices, and bubble size so that bubbles do not come into contact while they are being formed (see col. 2 lines 39-41 for

Art Unit: 1742

example), bubble size being limited to 10mm or below (see col. 7 line 37 for example), where the flow of the molten metal through the trough (20) provides a shear force to the molten metal, thereby showing all aspects of the above claims since, when using non wettable graphite, the ratio of protuberance diameter to orifice diameter is 5 (see col. 3 lines 19-21 where a protuberance diameter of 5 mm is cited and an orifice diameter of 1 mm is cited), and in any event, with respect to non-wettable materials, the use of non-wettable materials, such as the iron, silicon carbide or refractory metals used by Montgrain, provides a spreading ratio within the recited limits, as stated by the applicant at page 4, lines 11-15, and page 4, line 26 to page 5 line 15.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Montgrain in view of Manabu et al. As applied to claim 1 above, Montgrain shows all aspects of the above claims except the use of bubble detection means for monitoring the bubble size. Manabu et al, cited by the applicant, teaches that bubbles in molten metal are known to be monitored by x-ray monitoring in order to more effectively control the gas introduction process. Because more effective control of the gas introduction process would also be desirable in the system disclosed by Montgrain, motivation to include x-ray monitoring means, as taught by Manabu et al, would

Art Unit: 1742

have been a modification obvious to one of ordinary skill in the art at the time the invention was made.

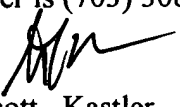
### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Each of Eckert, Robinson et al and Meyer are also cited as further examples of prior art gas introduction devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Kastler whose telephone number is (703) 308-2506. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703) 308-3050. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

  
Scott Kastler  
Primary Examiner  
Art Unit 1742

sk  
February 6, 2003